PROGRAM EXECUTIVE OFFICE MISSILES AND SPACE

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Army Integrated Air and Missile Defense

Program Overview

Any Warfighter - Anywhere - All The Time

False Impression Statement

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Why Do We Need Army IAMD

Experience in Recent Conflict

- Ambiguous Air Picture
- Lower level soldiers making critical decisions without adequate information

  Result => Fratricide

- Limited sensor/shooter choices based on MC stovepipes
- Antiquated MC architecture

  Result => Missed CM/TBM

- Lack of flexibility in employing assets

  Result => Overdeployed Forces, Logistics Burden

Current Gaps

- **Lack of Single Integrated Air Picture (SIAP) = Unacceptable level of confidence in Classification, Identification & Discrimination (CID) of Aerial Objects**

  ADDRESSED BY IBCS ✓

- **Lack of integrated fire control – "Stove-piped" capabilities**

  ADDRESSED BY IBCS ✓

- **Cannot adequately defend Critical Assets and Maneuvering Force against full range of aerial threats (BM, CM, UAS, RAM, ASR)**

  MITIGATORS: IBCS, P3I, MSE, IFPC/Avenger

- **Lack of Critical BLoS Enablers (Comms & Sensors)**

  MITIGATORS: IBCS, P3I

Technical Benefits

- **Net Centric Shared Situational Understanding and Control**
  - Fused composite sensor measurement data with Combat Identification capability
  - Positive control and awareness of lower and higher echelon situation and actions
  - From Fire Unit to Joint Air Operations level
- **Integrated Fire Control**
  - Increased Effectiveness, Coverage, and Efficiency
  - Reduced Fratricide Risk
- **Reduced MC Footprint**
  - From 9 to 1 configuration of AMD Ops Centers
  - Efficient Task Force Tailoring
  - Reduced Logistics Burden
  - More Efficient and Effective Training

Operational Benefits

- **Improved Mission Command**
  - Greater Situational Awareness and Understanding optimizes engagement decisions
  - Significantly Improves Combat Identification (improved friendly protect, reduced fratricide)
  - Improved ability to Battle Manage Weapons and conserve magazines
- **Dynamic Defense Design**
  - Fully Integrated Defense Design
  - Allows automated planning for Scalable and Tailorable Force Packages
- **Tailoring of AMD Forces to Counter the Complex, Integrated Threat**
  - Responsive engagement in complex integrated attack scenarios
  - Flexibility in Choice of Interceptors, AMD components
  - Larger Defended Area Against Full Spectrum of Threats with advanced engagement capability

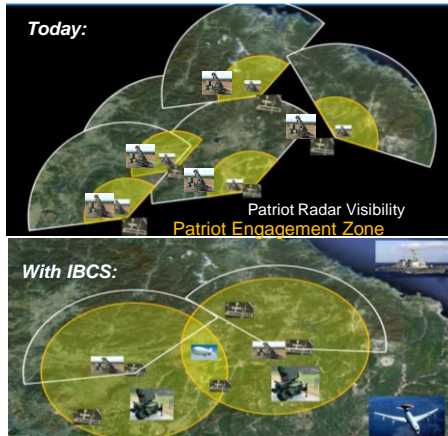**All gaps rank in top 1/3 of TRADOC's Warfighting Function Ordered Gap List**

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AIAMD Program Overview

Program Description:

- Provides common mission command across all Army AMD echelons and integrates with Joint IAMD architecture.

- Critical enabler addressing TRADOC Warfighting Operational Gaps
    - Single Integrated Air Picture (SIAP)
    - Integrated Fire Control (IFC)
    - Critical asset defense against full range of threats

- Architecture provides flexibility to respond to evolving threat (sensor, interceptor, EW)

Today:

Patriot Radar Visibility
Patriot Engagement Zone

With IBCS:

Additional Data Sources

Multiple Shooters

Program Components:

- Engagement Operations Center (EOC)
    - Army AMD mission command center provides AIAMD command, staff and engagement functions

- Integrated Fire Control Network (IFCN)
    - WIN-T based network with WIN-T configuration managed Tactical Mast Trailers equipped with IBCS B-side adaptation kits

- IBCS Software
    - Common mission command software

- Adaptation Kits (A-Kits)
    - Adapts sensors/shooters to the IFCN (Sentinel, PATRIOT, IFPC/Avenger)

IBCS SW

EOC

IFCN Relay

Adapted Components
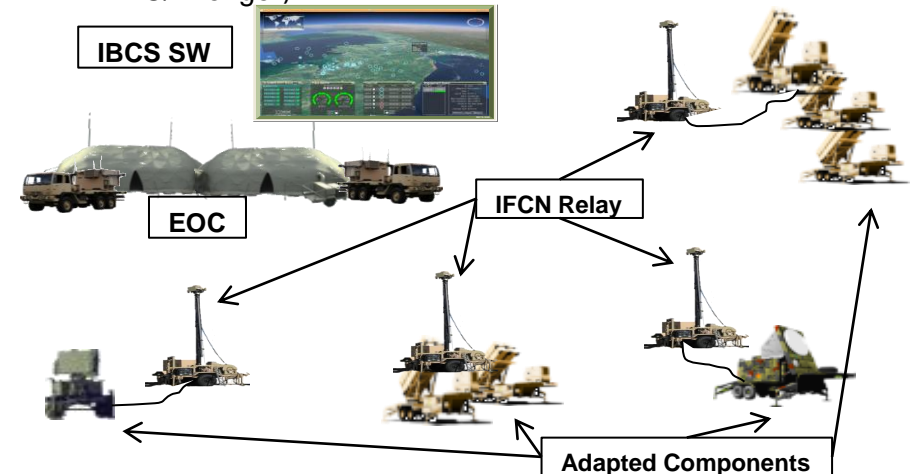
AIAMD is much more than integrating sensors and shooters

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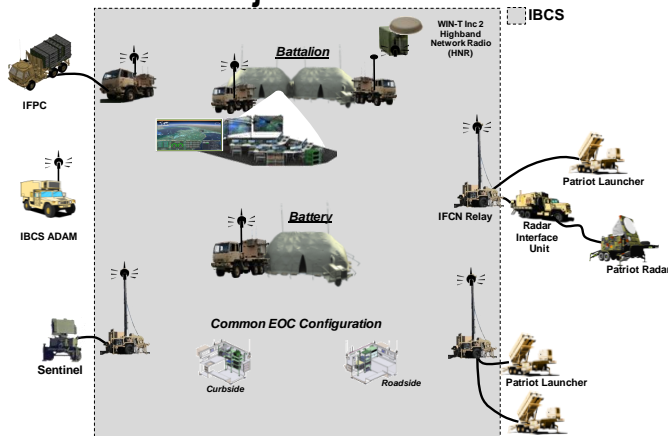
Army IAMD Description

AIAMD Description

- Army Integrated Air and Missile Defense (AIAMD) integrates sensors and weapons and a common mission command capability across a single, integrated fire control network providing a high-fidelity Single Integrated Air Picture (SIAP) for Army and is the Army contribution to Joint IAMD (JIAMD) capabilities.

- The common mission command element (IAMD Battle Command System or IBCS) provides the functional capabilities to control and manage the AIAMD sensors and weapons.

- AIAMD integrates Patriot Radar and Launcher, Improved Sentinel, IBCS components and future AMD capabilities to support engagement of AMD threats.

- Each sensor and weapon platform will have a 'plug and fight' interface module, which supplies distributed battle management functionality to enable network-centric operations (on a high band width, low latency WIN-T sub-network).
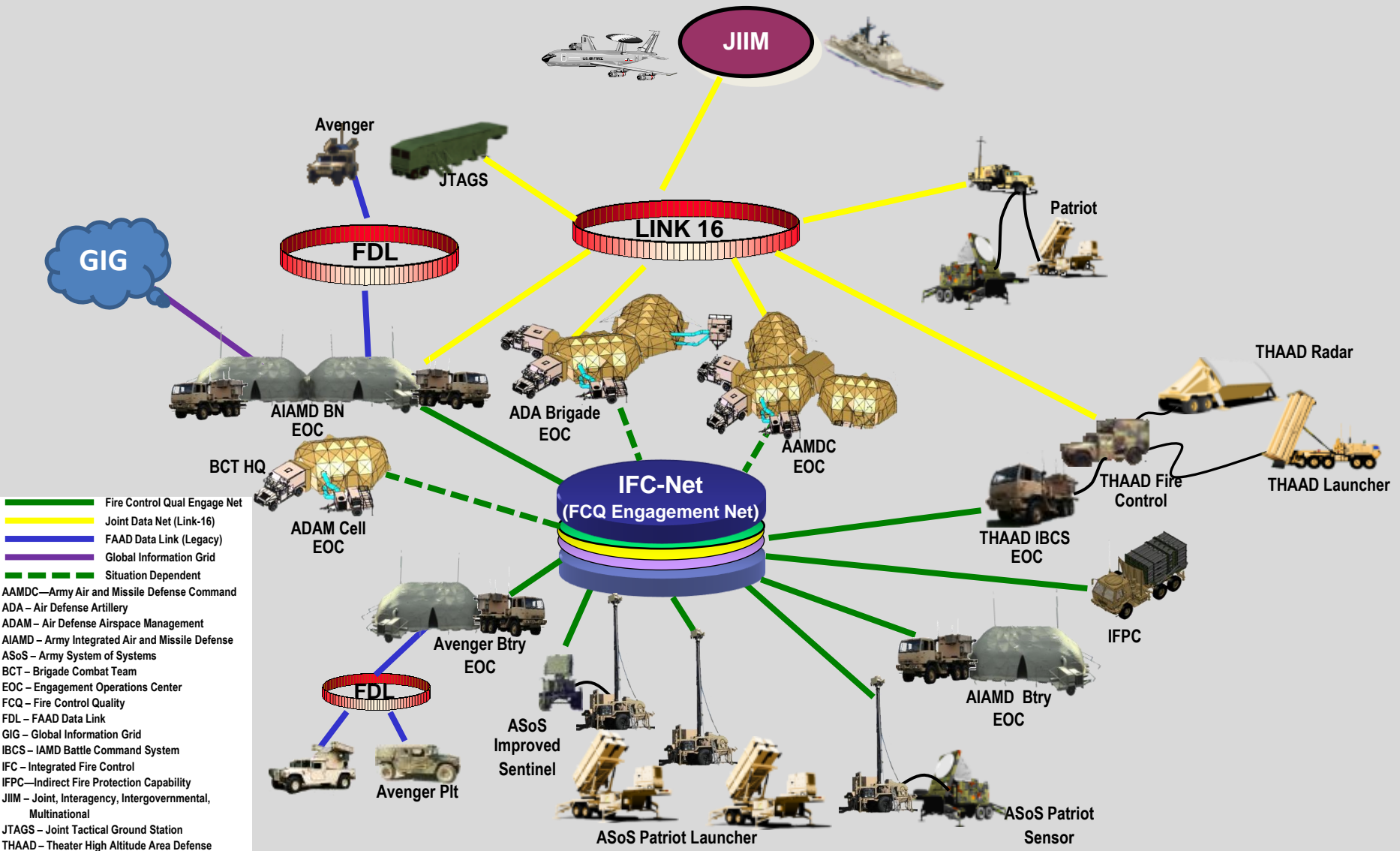
Major End Items

Benefits of AIAMD

- Significantly Improves Combat ID (fratricide prevention)

- Larger Defended Area Against Full Spectrum of Threats (CM, BM, UAV & LCR)

- Positive Mission Command (MC) of AMD assets across full area of operation through advanced collaborative tools enabling effective Engagement Operations and Force Operations

- Responsive engagement in complex operational scenarios with advanced engagement techniques

- Far Greater Situational Awareness/Situational Understanding of the 3rd Dimension through a composite/integrated and distributed air picture

- Enables Flexibility in Choice of Interceptors = More Efficient Use of limited and often high cost interceptors

- Ability to Battle Manage across all sensors and Shooters on the IFC Net – No "Single Points of Failure"

- Enables Scalable and Tailorable Force Packages

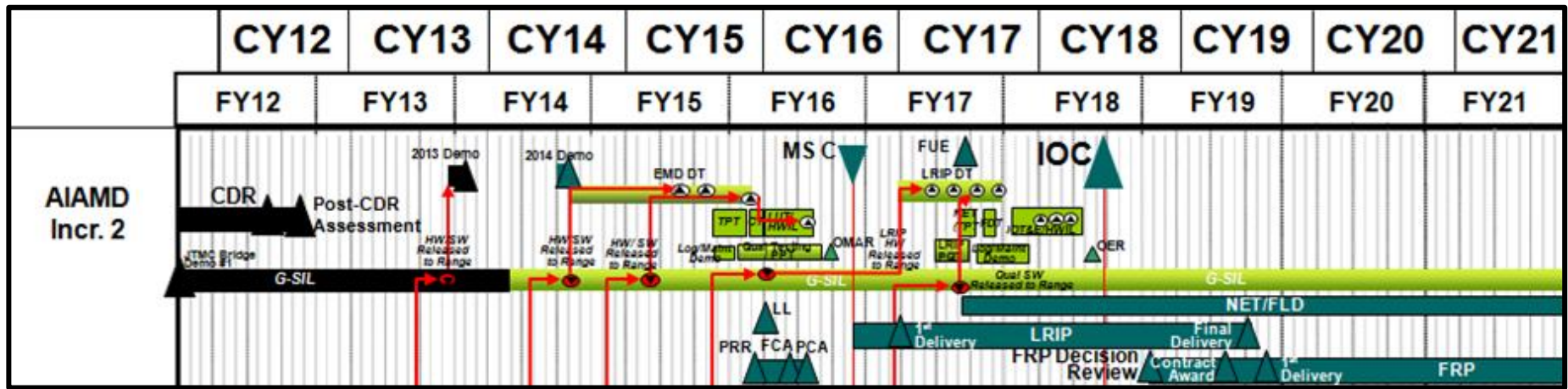- Training and Logistics Efficiencies across IAMD Force (common Warfighter machine interface and hardware)

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AIAMD Full Architecture

Legend:
- Fire Control Qual Engage Net
- Joint Data Net (Link-16)
- FAAD Data Link (Legacy)
- Global Information Grid
- Situation Dependent

AAMDC—Army Air and Missile Defense Command
ADA – Air Defense Artillery
ADAM – Air Defense Airspace Management
AIAMD – Army Integrated Air and Missile Defense
ASoS – Army System of Systems
BCT – Brigade Combat Team
EOC – Engagement Operations Center
FCQ – Fire Control Quality
FDL – FAAD Data Link
GIG – Global Information Grid
IBCS – IAMD Battle Command System
IFC – Integrated Fire Control
IFPC—Indirect Fire Protection Capability
JIIM – Joint, Interagency, Intergovernmental, Multinational
JTAGS – Joint Tactical Ground Station
THAAD – Theater High Altitude Area Defense

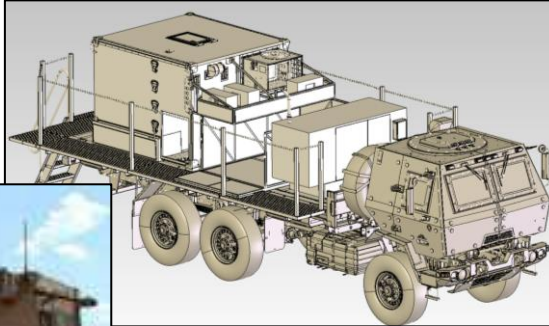*Any Warfighter - Anywhere - All The Time*

AIAMD Program Master Schedule

IAMD Battle Command System (IBCS) Physical and Functional Components

Engagement Operations Center (EOC)

IFCN Relay (RDT&E Hardware)

Integrated Fire Control Network

IFCN Network Enclosure (RDT&E Hardware)

EOC Hardwall Shelter (RDT&E Hardware)

Plug & Fight Kits

Plug and Fight Processing Unit (RDT&E Hardware)

Patriot Launcher Integration Kit

Integrated Collaborative Environment (ICE)

Current Operations

- FCO	- Intel
- WCO	- Force Prot
- WCO	- S3 Battle CPT
- IDO	- ICO
- SO	- Sustainment

Future Operations

- XO	- Maintenance
- S3 Plans	- Logistics
- S3 Asst	- NBC
- S2 Plans	- Comms
- S2 Asst	- Personnel

2 Large Screen Displays
- Display Common Operational Picture in up to 6 separate windows

10 Workstations per tent
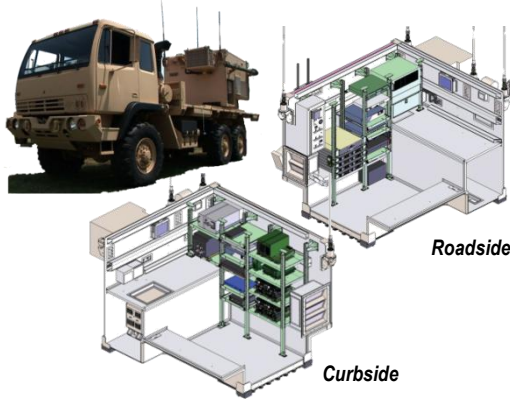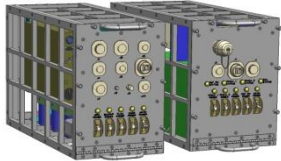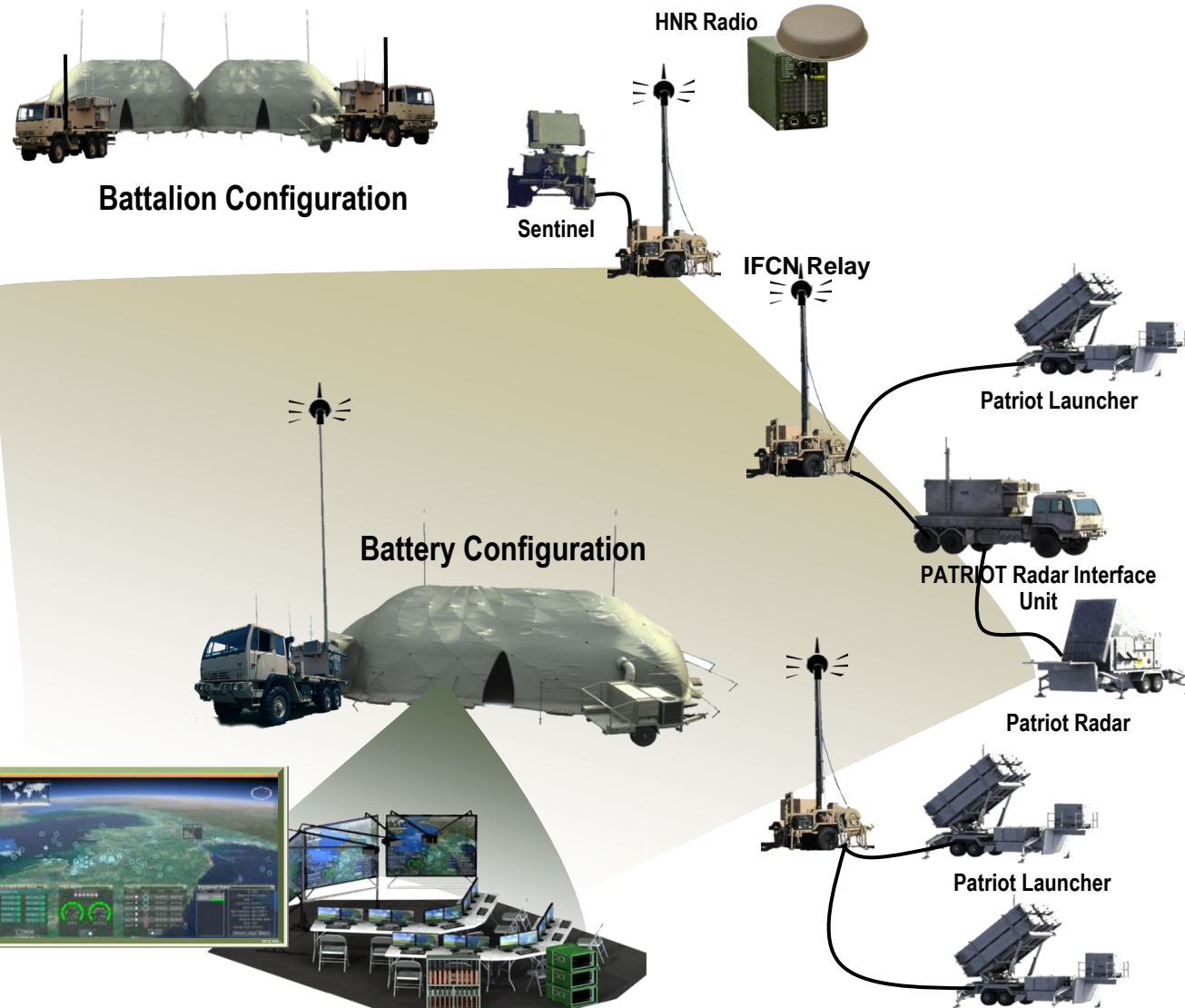- Provides FCE and ABCS capability as configured

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IFC Network

Common Products

Common EOC Configuration

Roadside

Curbside

Common P&F Capability

Common Software

Battalion Configuration

HNR Radio

Sentinel

IFCN Relay

Battery Configuration

Patriot Launcher

PATRIOT Radar Interface Unit

Patriot Radar
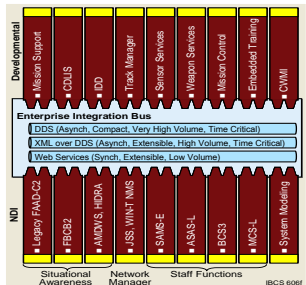
Patriot Launcher

IFCN Relay

Description

- – **Provides IAMD interface for Adapted Sensors and Weapons**
- – **Supports Mission Data, Precise Timing and Voice**
- –**Supports Sensor and Multiple Simultaneous Launcher Connections**

Patriot Radar Integration Strategy

- ## Initial IAMD Operational Capability

  - **Modified Patriot Engagement Control Station (ECS) retained as the Radar Interface Unit (RIU)**

    - ➤ **RIU performs PATRIOT sensor-related functions**

    - ➤ **ECS/RIU option selected at boot**

    - ➤ **No Operator Engagement Operation functionality**

    - ➤ **Provides interface to IFCN Relay or EOC**

- ## Patriot Radar directly on the IFCN

  - **Radar Digital Processor Enables Elimination of the RIU**

  - **ECS functionality integrated into the Radar**

Future Radars Designed/Developed with Embedded Capability

Launcher Integration

The Launcher Integration Network Kit (LINK) is the interface between the IBCS and Integrated Fire Control Network (IFCN) and the PATRIOT Launcher(s)

- **LINK Enables Launcher on the Net (LOTN)**

  – **Connects the PATRIOT launcher to the IBCS network via a Tactical Fiber Optics interface with the IBCS EOC Shelter or Tactical Mobile Tower**

  – **Plug and Fight capability for 901s (PAC-2), 902s (PAC-2/3), and 903s (MSE) Launchers**

  – **Provides a daisy chain capability to allow multiple launchers to connect to the IBCS network**

- **LINK serves as a Interface Data Language (IDL) Translator**

  – **LINK processes and translates messages to PATRIOT synchronous serial messages**

> **Fielding the IAMD Battle Command System (IBCS) Capability is the AMD User's Number One Priority**

Summary

- **AIAMD Program Scope includes synchronization with Army and Joint Interagency Intergovernmental Multinational (JIIM) Programs and Systems.**

- **AIAMD Program Utilizes a Modular Open System Architecture Allowing the Integration of New Capabilities as They Become Available.**

- **AIAMD Program is tightly coupled with the S&T Community to Integrate the Capability Improvements as They are Being Developed.**

- **Program Supports the Fires Center Concept of Fires.**

Fielding the IAMD Battle Command System (IBCS) Capability is the AMD User's Number One Priority

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